

### **Remarks/Arguments**

This paper is filed in reply to the final office action dated April 30, 2008. Each rejection is set forth under a separate heading. Claims 50 and 54 have been amended to make them independent claims. Claim 69 was also made independent and to add the other elements that have been actually exemplified in the specification. Claims 70 and 71 are new and, as discussed in the interview, are similar to Claims 50 and 54, but limited to transition metals. Claims 57-68 have been amended to depend from Claims 52 and 56. It is noted that these claims are directed to allowable subject matter. It is believed that the amendments avoid the objection with respect to these claims.

### **Interview Summary**

The undersigned wishes to thank the Examiner for the interview on June 4, 2008. The Examiner's interview summary record dated June 12, 2008 is correct.

### **Double patenting**

The double patenting rejections have been maintained. The Examiner asserts that the terminal disclaimers have not been signed by an attorney of record. While it is believed that a power of attorney from a parent application carries forward to a continuing application, a newly executed power of attorney is enclosed herewith.

### **35 USC 112, second paragraph**

Claim 46 was rejected as being dependent upon a canceled base claim. The typographical error is regretted and has been corrected.

### **35 USC 112, first paragraph**

The Examiner has rejected claims 44-56 stating that the specification does not describe the invention or enable one of ordinary skill in the art to make or use the full scope of the claims. The following claim has been allowed in USSN 10/690,050:

A composition comprising gold, silver, tin, lead, zinc, sodium, magnesium, potassium, vanadium, chromium, manganese, tantalum, hafnium, tungsten or

alloys thereof, characterized by an X-ray fluorescence analysis report wherein the report recites the presence of an element in the periodic table wherein said composition has not been in contact with said element and is manufactured by exposing a starting composition to an iterative cyclic process in the presence of a carbon source.

Claim 49 differs from the allowed claims in that (1) the composition is not limited to specific metals and (2) the limitation that the product be made by an iterative process (in the presence of carbon) has been deleted. Claim 50 differs from Claim 49 in that it is directed specifically to metals, such as alkali metals, alkaline earth metals, light metals and transition metals (see also Claims 70 and 71). Claim 69 reintroduces the specific metals that have been allowed while Claims 51 and 52 reintroduce the iterative process limitations.

With respect to the scope of the elements claimed, given the very divergent number of elements where data has been provided, including metals other than transition metals, such as alkali metals, silicon and aluminum, there is no logical basis for restricting the claims to specific metals and silicon. Applicants have refuted any argument that the observed phenomenon is unique to specific metals. There is no scientific basis presented to conclude that other elements of the periodic table, particularly metals (see Claim 50), could not be similarly modified. The figure below shows the elements that have been successfully tailored to modify the physical and/or chemical property set according to the methods specified herein. A set of pure elements and alloys were methodically subjected to the aforementioned methods to ensure that from a quantum mechanics viewpoint, nearly the entire spectrum of the periodic table was covered<sup>1</sup>. Note that the alkali metals, the alkaline earth metals, the transition metals, and light metals were tested. In fact, the individual elements actually tested represent >75% of the commercially-relevant, readily-available commodity “metals” used today.

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<sup>1</sup>The successive electron occupation of the f-orbital (lanthanide and actinide series) was not tested.

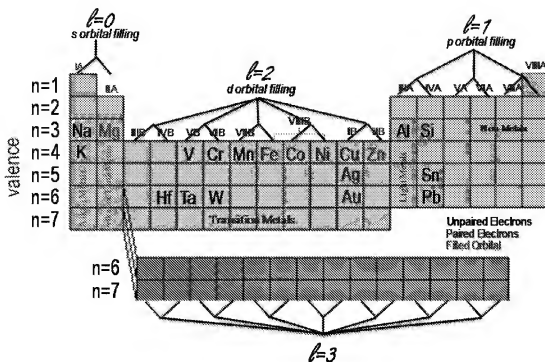


Figure: Periodic table showing all elements tailored. Notes elements tested spanned multiple groups and traversed periods.

Further, as explained in the attached paper, prepared by the inventor as a review, there is no technical basis to question that the results achieved cannot be further extrapolated.

Even if it were true that some elements cannot be modified by the method as described in the specification, that fact alone does not mean that the broadest claims are not enabled. The claims embrace only those elements that possess the described novel properties. As such, if a particular material or composition *cannot* possess the properties as claimed, it is not claimed. That is, the claims, as drafted, only embrace those materials which work.

Further, as explained in MPEP 2164.08(b) the presence of potentially inoperative embodiments within the scope of a claim does not necessarily render a claim nonenabled.

The standard is whether a skilled person could determine which embodiments that were conceived, but not yet made, would be inoperative or operative with expenditure of no more effort than is normally required in the art. *Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 750 F.2d 1569, 1577, 224 USPQ 409, 414 (Fed. Cir. 1984) (prophetic examples do not make the disclosure nonenabling).

Although, typically, inoperative embodiments are excluded by language in a claim (e.g., preamble), the scope of the claim may still not be enabled where undue experimentation is involved in determining those embodiments that are operable. A disclosure of a large number of operable embodiments and the identification of a single inoperative embodiment did not render a claim broader than the enabled scope because undue experimentation was not involved in determining those embodiments that were operable. *In re Angstadt*, 537 F.2d 498, 502-503, 190 USPQ 214, 218 (CCPA 1976). However, claims reading on significant numbers of inoperative embodiments would render claims nonenabled when the specification does not clearly identify the operative embodiments and undue experimentation is involved in determining those that are operative. *Atlas Powder Co. v. E.I. duPont de Nemours & Co.*, 750 F.2d 1569, 1577, 224 USPQ 409, 414 (Fed. Cir. 1984); *In re Cook*, 439 F.2d 730, 735, 169 USPQ 298, 302 (CCPA 1971).

Thus, even claim 49, which theoretically provides for non-metals, should be allowed as the determination of those elements are inoperative, following the guidance set forth in the specification will not require undue experimentation.

It is noted that this basis for rejection should not apply to Claims 44-48 and 57-69.

With respect to the requirement that the claims be limited to the process by which it is made, there is no legal authority presented that supports the proposition that a claim to a product must be limited to the process described in the specification which enables the claimed products, even in an unpredictable art. That is, it is not in dispute that the specification enables the manufacture of the claimed compositions (at least with respect to the transition metals and silicon), employing such an iterative process (as evidenced by the numerous related patents that have already been issued). Thus, it is not in dispute that the specification teaches at least one enabled process. No more is required under the law. In fact, the USPTO did not require the claims of US Patent 6,572,792, a parent application, to be so limited. It appeared that the Examiner tentatively agreed with the undersigned during the interview in this respect.

Based upon the breadth of the exemplification provided to date, it is believed that Applicant has satisfied his burden for enabling the full scope of the claims. The USPTO has failed to meet its burden in establishing why the specification is not enabling for the scope of the claims.

Withdrawal of the rejection is respectfully requested.

**Conclusion**

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned at (978) 251-3509.

Respectfully submitted,

ELMORE PATENT LAW GROUP, P.C.

/Carolyn S. Elmore/

By \_\_\_\_\_

Carolyn S. Elmore

Registration No.: 37,567

Telephone: (978) 251-3509

Facsimile: (978) 251-3973

Westford, MA 01886

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